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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 18, 1992
SUBJECT: Split-Sample Comparative Analysis for Lead in
Drinking Water - NLT Industries, IL - ATSDR Study
FROM: David C. Kaye, Chief
TO: LSS Section, CHL (52-10C)
Brad Bradley, Environmental Engineer
IL/IN Remedial Response Branch
Office of Superfund

After the U.S. EPA CLP lab tested drinking water and reported Cd & Pb results for the subject study, the Central Regional Laboratory requested and received 67 of the samples from the CLP lab for comparative lead analyses on a split-sample basis. Approximately 1 in 7 samples were retested by the CHL/ESAT staff as split samples. ~~Initial~~ Preliminary comparative analyses for Pb were provided you in a memo dated June 2, 1992. This memo is a final report on the split-sample analyses. See attached Table for comparative analyses.

1. An excellent correspondence is obtained between the CHL/ESAT and the CLP lab for 66 of the 67 split-samples for lead. If either the CLP or the CHL/ESAT results were used, no difference in data use would be noted. A positive bias of 0 to 5 µg/l is noted for the CHL versus the CLP lab's lead results. Sample E-~~20~~70, however, provides a 3 fold greater value at the CHL versus the CLP lab. Overall, we can have confidence in the accuracy of the CLP lab's lead results for drinking water. The CLP lab had no false positive or false negative results versus CHL results.

2. The value of 46.7 mg/l root should be used for sample E-736 instead of the 16.8 mg/l value reported in the LW lat. The CEL/ESAT value was verified by a second set of analyses.
3. Two field duplicate sets (E-507/508 & E-517/518) were created for split-samples. The differences are real and not a lab artifact. The first-draw sample may not be the same aliquot used for the duplicate.

4. ~~Four samples~~ Four field blanks were selected for split-samples (E-557, 639, 806 & 734) and indicate $\epsilon \neq \pm$ did an aliquot not for this QC audit. No cal on Pb was detected in any of the field blanks prepared by $\epsilon \neq \pm$ for the audit drinking water study portion.

5. The attached table also provides a listing for field duplicate "blend" to the LW lat. (These were obtained from an $\epsilon \neq \pm$ summary). The field duplicate results are indicative of appropriate load analysis by the CL lat. The duplicate method are probably due to differences in aliquot comparison than to lab analysis differences (see memo #3 above).

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O.C.

Ecology & Environment

L. Faldutski, ATSDR

F. Stallings, ATSDR

C.T. Clark, QRL

D. May, QRL

H. Morris, QRL

A. Thompson, QRL - Attn: ESAT

6 Page Attachments

SAS6864E - Comparison by H_2O + Analysis Data to CRL

PKG	SAMPLE	PREP'D	ANALYZED	Lead (ug/l)		CRL (ESAT)
				CLP	F.D.	
1	507	12-3-91	12-3-91	14.5	F.D.	15.6
	508	12-3-91	12-3-91	2.9		3.63
6	517	12-6-91	12-6-91	9.5	F.D.	5.97
	518	12-6-91	12-6-91	13.5		9.12
5	521	12-6-91	12-6-91	1.1		2.1
	543	12-7-91	12-7-91	8.7		2.1 (8.7)
4	544	12-7-91	12-7-91	1.1		2.1
	548	12-7-91	12-7-91	7.1		7.51
4	551	12-8-91	12-8-91	15.9		17.47
	553	12-8-91	12-8-91	1.18		2.1
18	557	12-8-91	12-8-91	1.1	(B)	2.1 (B)
	600	12-13-91	12-13 (1 st)	1.08		2.1
12	603	12-13-91	12-13 (1 st)	29.0		34.02
	625	12-13-91	12-13 (1 st)	3.9		6.73
13	629	12-13-91	12-13 (2 nd)	8.0		14.61
	639	12-13-91	12-13 (2 nd)	1.1	(B)	2.1 (B)
16	671	12-13-91	12-13 (2 nd)	1.1		2.1
	685	12-13-91	12-13 (3 rd)	1.1		2.1
24	706	12-13-91	12-13 (3 rd)	3.4		3.39
	711	12-13-91	12-13 (3 rd)	1.1		2.1
13	721	12-13-91	12-13 (4 th)	4.5		5.49
	797	12-13-91	12-13 (4 th)	1.1		2.1
26	800	12-13-91	12-13 (4 th)	15.4		21.14
	806	12-13-91	12-13 (5 th)	1.1	(B)	2.1 (B)
24	808	12-13-91	12-13 (5 th)	95.5		111.6
	564	12-19-91	12-19 (1 st)	1.68		2.94
24	570	12-19-91	12-19 (1 st)	9.2		10.01
	571	12-19-91	12-19 (1 st)	1.1		2.1
24	584	12-19-91	12-19 (2 nd)	1.1		2.1
	589	12-19-91	12-19 (2 nd)	1.08		2.1

5-28-92; prepared by S.M. May ①

SAS 6864E-Comparison by Prep. + Analysis Dates to CRL

Lead ($\mu\text{g}/\text{g}$)

PKG	SAMPLE	PREP D	ANALYZED	CLP	CRL (ESA)
24	609	12-19-91	12-19 (2 nd)	3.0	5.31
25	618	12-19-91	12-19 (3 rd)	7.2	9.4
	622	12-19-91	12-19 (3 rd)	14	24
	643	12-19-91	12-19 (3 rd)	11.1	12.4
23	662	12-19-91	12-19 (4 th)	23.3	32.67
	663	12-19-91	12-19 (4 th)	5.2	7.88
	665	12-19-91	12-19 (4 th)	14	24
28	726	12-21-91	12-21 (1 st)	16.8 *	42.03 (46.7) *
	727	12-21-91	12-21 (1 st)	14	24
	729	12-21-91	12-21 (1 st)	4.8	6.56
34	773	12-21-91	12-21 (2 nd)	2.2	2.58
	782	12-21-91	12-21 (2 nd)	3.3	5.85
	786	12-21-91	12-21 (2 nd)	14	24
29	734	12-27-91	12-27 (1 st)	14 (B)	24 (B)
	740	12-27-91	12-27 (1 st)	10.0	11.72
	756	12-27-91	12-27 (1 st)	14	24
41	851	12-27-91	12-27 (3 rd)	17.0	18.84
	854	12-27-91	12-27 (3 rd)	12.9	16.98
	866	12-27-91	12-27 (3 rd)	1.18	24
38	819	12-27-91	12-27 (4 th)	7.4	7.95
	821	12-27-91	12-27 (4 th)	1.58	24
	826	12-27-91	12-27 (4 th)	14	24
33	829	12-30-91	12-30 (1 st)	14	24
	842	12-30-91	12-30 (1 st)	5.2	7.15
	843	12-30-91	12-30 (1 st)	1.28	24
40	871	12-30-91	12-30 (2 nd)	1.98	24
	880	12-30-91	12-30 (2 nd)	8.4	12.26
	887	12-30-91	12-30 (2 nd)	1.18	24
37	914	12-30-91	12-30 (3 rd)	7.6 *	24 (10.3) *
	924	12-30-91	12-30 (3 rd)	63.8	71.18

5-28-92; analyzed by S.M. Maw

SAS6864E - Comparison by Prep. + Analysis Dates to CRL
 H_2O Lead (ug/l)

PKG	SAMPLE	PREP'D	ANALYZED	CLP	CRL(ESA)
42	891	12-31-91	12-31 (1 st)	4.8	8.0
	899	12-31-91	12-31 (1 st)	9.7	10.5
	904	12-31-91	12-31 (1 st)	2.8	2.54
45	928	12-31-91	12-31 (2 nd)	8.2	7.50
	929	12-31-91	12-31 (2 nd)	7.8	6.98

Sample returned to ESAT at CRL, not included on list

28	703	12-21-91	12-21 (1 st)	6.6	10.45
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* Sample values in parenthesis are re-analysis results by ESAT, at CRL, on questionable comparison results.

5-28-92; prepared by D.M. May

To : J. Thakkar for Transmittal to D. Payne

From : J. Ganz Through D. Miller

ganz DM

TID : 0592-0617

Task : 2315-1104

Date : June 11, 1992

Re : Reanalysis of Samples from NL Industries

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The summary of the split-sample drinking water Pb results provided to ESAT was accurate. Three of the samples were reanalyzed for Pb using GFAA. The results are summarized below; the raw data is attached.

<u>Sample</u>	<u>Pb ESAT (µg/L)</u>	<u>Pb Columbia (µg/L)</u>
900I07S28 (E-726)	46.7	16.8
900I07S29 (E-914)	10.3	7.6
900I07S40 (E-543)	7.0	8.7

Please contact me if further information is required.

SAS #68645 Field Replicates - H₂O

Sample #	Lead (mg/l)		
E 507/508	14.5	2.9	
E 505/506	1.48	1.48	
E 540/541	1.08	1.08	
E 522/523	2.1	2.5	
E 531/532	3.7	1.78	
E 571/572	1.04	1.04	
E 610/611	1.04	1.04	
E 556/560	2.2	1.38	
E 517/518	9.5	13.5	
E 595/596	1.04	1.48	
E 601/602	1.78	1.04	
E 636/637	2.2	1.18	#12 agreed by J. Stollen
E 670/674	1.04	1.04	#12 agreed by J. Stollen
E 705/706	1.58	3.4	
E 710/711	1.04	1.04	
E 796/797	1.04	1.04	
E 804/805	2.2 2.2	2.0 2.0	#13 agreed by J. Stollen
E 889/890	5.1	5.0	
E 649/650	1.08	1.04	
E 658/659	1.04	1.04	
E 692/693	1.04	1.04	
E 724/725	1.04	1.08	
E 742/743	1.58	2.7	
E 735/736	1.04	1.04	franklin correction by CLP after E738
E 748/749	1.38	1.78	
E 778/779	3.7	1.78	
E 759/760	2.1	7.7	{ poly #32 agreed by J. Stollen
E 767/768	1.04	1.04	
E 827/828	2.5	1.28	
E 836/837	1.04	1.04	poly #38 (E827) + #33 (E828)
			X- (OVER)

E848/849	1.3 B	1.8 B
E857/858	1.1 B	2.0
E870/871	1.0 U	1.9 B
E881/882	3.2	2.2

5-29-92; prep'd. by D.M. May

Field Duplicates (cont.)
D. Payne 6-2-92